

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-8. (canceled)

9. (original) A piezoelectric device for an injector built in an injector and generating driving force of said injector, characterized in that:

said piezoelectric device is fabricated by alternately laminating a plurality of piezoelectric layers expanding and contracting in proportion to an applied voltage and a plurality of internal electrode layers for supplying the applied voltage;

the sectional shape of said piezoelectric device crossing at right angles the laminating direction is an octagon or a polygon with a larger number of sides than octagon; and

said piezoelectric device is accommodated in a cylindrical accommodation space.

10. (original) A piezoelectric device for an injector according to claim 9, wherein a proximity ratio expressed by $(B/A) \times 100 (\%)$, where A is a length of the whole circumference of a circumscribed circle of said piezoelectric device and B is the sum of length of circumferential portions having a distance of

0.2 mm or below between said circumscribed circle and said piezoelectric device,
is larger than 17%.

11. (original) A piezoelectric device for an injector according to claim 9, wherein a proximity ratio expressed by $(B/A) \times 100 (\%)$, where A is a length of the whole circumference of a circumscribed circle of said piezoelectric device and B is the sum of length of circumferential portions having a distance of 0.2 mm or below between said circumscribed circle and said piezoelectric device, is 32% or more.

12. (original) A piezoelectric device for an injector according to claim 9, wherein at least two side surface flat portions having a width of 2.5 mm or more are disposed on a side surface parallel to said laminating direction.

13. (original) A piezoelectric device for an injector according to claim 9, wherein an insulating film having a thickness of 0.002 to 0.5 mm is formed at least on the surface of a side surface parallel to the laminating direction.

14. (original) A piezoelectric device for an injector according to claim 13, wherein a value $R2-R1$, where R1 is a maximum outer diameter of said

piezoelectric device inclusive of said insulating member and R2 is an inner diameter of said circular cylindrical accommodation space, is 0.5 mm or below.

15. (original) A piezoelectric device for an injector according to claim 13, wherein said insulating film is made of any of a silicone resin, a polyimide resin, an epoxy resin and a fluorocarbon resin.

16. (original) A piezoelectric device for an injector according to claim 9, wherein electrode take-out portions electrically connected to said internal electrode layers are disposed on a distal end face and a rear end face of said piezoelectric device in the laminating direction, respectively.

17. (original) A piezoelectric device for an injector according to claim 9, wherein two electrode take-out portions electrically connected to said internal electrode layer are disposed on either one of a distal end face and a rear end face of said piezoelectric device in the laminating direction.

18. (original) A piezoelectric device for an injector according to claim 16, wherein at least one of said electrode take-out portions is electrically connected to at least one of said internal electrode layers through a through-hole formed in said piezoelectric layer.

19. (original) A piezoelectric device for an injector according to claim 16, wherein at least one of said electrode take-out portions is electrically connected to a side surface disposed on said side surface of said piezoelectric device.

20. (original) A piezoelectric device for an injector built in an injector and generating driving force of said injector, characterized in that:

said piezoelectric device is fabricated by alternately laminating a plurality of piezoelectric layers expanding and contracting in proportion to an applied voltage and a plurality of internal electrode layers for supplying the applied voltage;

at least a part or the whole of the sectional shape of said piezoelectric device crossing at right angles the laminating direction is arcuate; and

said piezoelectric device is accommodated in a circular cylindrical accommodation space.

21. (original) A piezoelectric device for an injector according to claim 20, wherein a proximity ratio expressed by $(B/A) \times 100 (\%)$, where A is a length of the whole circumference of a circumscribed circle of said piezoelectric device and B is the sum of length of circumferential portions having a distance of

0.2 mm or below between said circumscribed circle and said piezoelectric device,
is larger than 17%.

22. (original) A piezoelectric device for an injector according to claim 20, wherein a proximity ratio expressed by $(B/A) \times 100 (\%)$, where A is a length of the whole circumference of a circumscribed circle of said piezoelectric device and B is the sum of length of circumferential portions having a distance of 0.2 mm or below between said circumscribed circle and said piezoelectric device, is 32% or more.

23. (original) A piezoelectric device for an injector according to claim 20, wherein at least two side surface flat portions having a width of 2.5 mm or more are disposed on the side surface parallel to the laminating direction.

24. (original) A piezoelectric device for an injector according to claim 20, wherein an insulating film having a thickness of 0.002 to 0.5 mm is formed on at least the surface of the side surface parallel to the laminating direction of said piezoelectric device.

25. (original) A piezoelectric device for an injector according to claim 24, wherein a value $R2-R1$, where R1 is a maximum outer diameter of said

piezoelectric device inclusive of said insulating member and R2 is an inner diameter of said cylindrical accommodation space, is 0.5 mm or below.

26. (original) A piezoelectric device for an injector according to claim 24, wherein said insulating film is made of any of a silicone resin, a polyimide resin, an epoxy resin and a fluorocarbon resin.

27. (original) A piezoelectric device for an injector according to claim 20, wherein electrode take-out portions electrically connected to said internal electrode layers are disposed on a distal end face and a rear end face of said piezoelectric device in the laminating direction, respectively.

28. (original) A piezoelectric device for an injector according to claim 20, wherein two electrode take-out portions electrically connected to said internal electrode layer are disposed on either one of a distal end face and a rear end face of said piezoelectric device in the laminating direction.

29. (original) A piezoelectric device for an injector according to claim 27, wherein at least one of said electrode take-out portions is electrically connected to at least one of said internal electrode layers through a through-hole formed in said piezoelectric layer.

KOBAYASHI et al.

Divisional of Application No. 09/866,677

December 10, 2003

30. (original) A piezoelectric device for an injector according to claim 27, wherein at least one of said electrode take-out portions is electrically connected to a side surface disposed on said side surface of said piezoelectric device.